Jan. 31, 1956 E. R. HECK 2,732,581

HINGE STRUCTURE FOR MOLDED PLASTIC BOXES

Filed Dec. 13, 1954

Fig. 7.

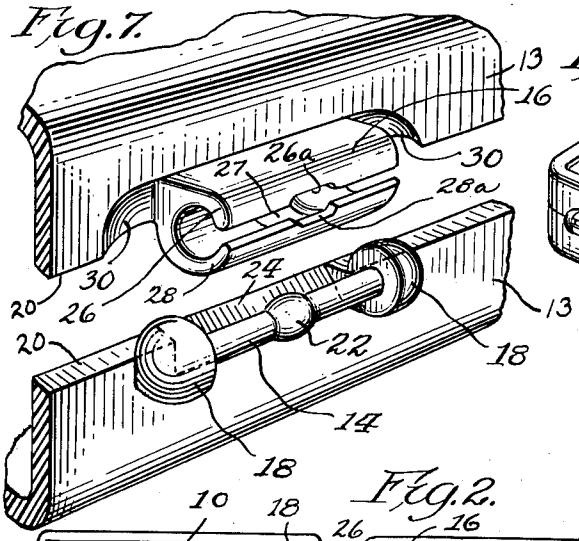


Fig. 1

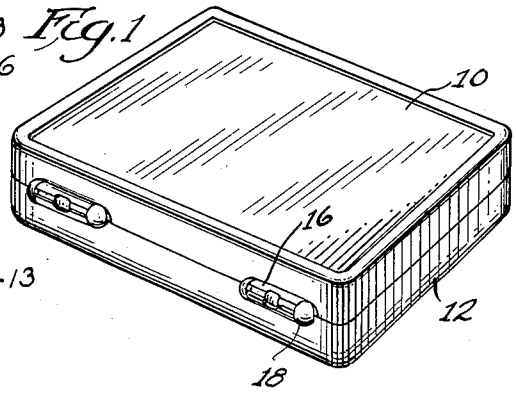


Fig. 2.

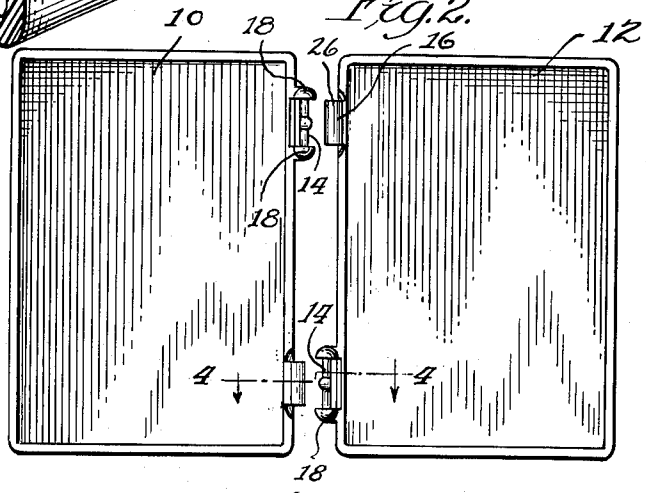


Fig. 5.

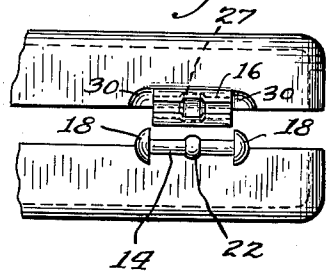


Fig. 6.

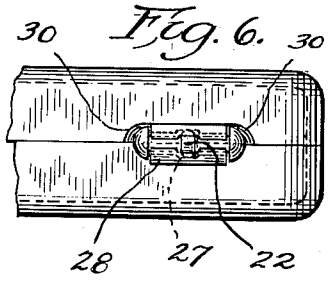


Fig. 3.

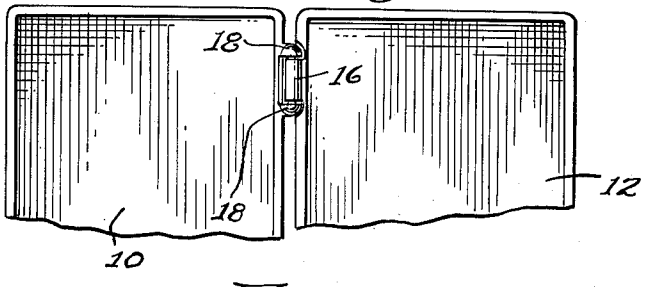
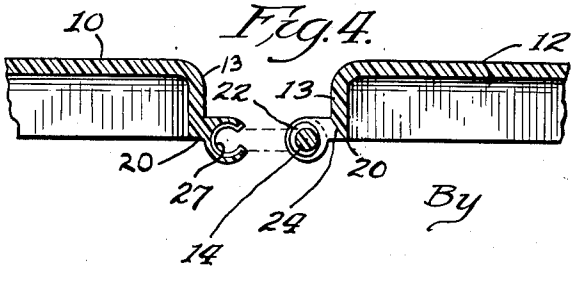


Fig. 4.



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HINGE STRUCTURE FOR MOLDED PLASTIC BOXES

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2 Claims. (Cl. 16—171)

This invention relates to improvements in hinge structures for molded plastic boxes.

One of the objects of this invention is to provide a hinge structure for molded plastic boxes wherein the mating hinge elements may be merely snapped into position and interengaged without requiring the use of tools or other methods of assembly.

Another object is to provide a hinge structure molded integrally with the box sections, each box section having a hinge pin and a hook adapted to be interengaged with the complementary hinge pin and hook of the other box section by a snap like action.

Another object of this invention is to provide a simple and inexpensive hinge for molded plastic products which is molded integrally with the product and which serves to interlock the hinge elements against separation when once they are snapped together.

Another object of this invention is to provide a hinge construction for molded plastic products, more particularly boxes and the like in which the hinge elements on the box sections are identical and wherein both sections may be made interchangeable and molded in a single mold.

Other objects will become apparent as this description progresses.

In the drawing:

Fig. 1 is a perspective view of a molded plastic box or container showing the hinge connections.

Fig. 2 is a top plan view of the box sections prior to being snapped together.

Fig. 3 is a view similar to Fig. 2 but showing the hinge interengaged or snapped together.

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 2.

Fig. 5 is a rear elevational view of the box sections and their respective hinges in separated position.

Fig. 6 is a view similar to Fig. 5 but showing the hinge sections interengaged, and

Fig. 7 is an exploded perspective view showing the hinge elements prior to being interengaged.

The box or container is formed of two sections and in the illustrations shown the two sections are identical, although it will be understood that the box may be formed of a container portion and a lid of different depths. The box is formed of molded plastic material such as polystyrene or "Lucite" which is a methyl methacrylate resin or any other thermoplastic material well known in the art. The two sections are designated by the numerals **10** and **12**. Each section may serve either as the box cover or body and is interchangeable. Each section on the rear wall **13** thereof has a pintle or hinge pin **14** adjacent one side thereof and a hook **16** adjacent the opposite side. Thus if the box sections are of the same depth they may be interchangeably used and may be formed in one mold.

Each box section has the pintle or hinge pin **14** formed integrally with the rear wall of the section and spaced rearwardly therefrom by means of a pair of bosses **18**, all of which are integrally molded with the rear wall of the box sections. The hinge pin **14** is positioned so that its longitudinal axis is substantially on the same plane as the edge **20** of the rear wall **13**. A boss or bead portion **22** is formed intermediate the length of the hinge pin **14** for the purpose to be described hereinafter. The rear

wall adjacent the pin is recessed or tapered as at **24** to accommodate the mating hook **16**. The hook **16** which is also integrally molded with the box section is best shown in Figs. 4 and 7 and comprises an elongated hook which is C-shaped in transverse section having lips **26** and **28**. The hook extends rearwardly from the rear wall **13** and a portion of same extends beyond the edge **20** of the rear wall. The rear wall **13** adjacent the opposite ends of the hook **16** is recessed as at **30** to accommodate the bosses **18** of the hinge pin **14**.

The opposite lips **26** and **28** of the hook **16** are each provided centrally thereof with recessed portions **26***a* and **28***a* and a communicating channel or continuous recess **27**. The boss **22** of the hinge pin **14** enters through the recesses **26***a* and **28***a* when the pin and hooks are first interengaged. The boss **22** will be confined in the channel **27**. The hook **16** is of a width to extend between the inner sides of the bosses **18** supporting the hinge pin. The hinge pin **14** and hook **16** on each section are in transversely aligned relation.

Since each box section has complementary parts, the box sections may be interchangeably used and may be thus all molded from one mold. That is, each box section forms both the top and the bottom of the box.

To assemble the box sections, the hinge members are merely snapped into position and interchanged by a snap on fit. The boss **22** on the hinge pin will first pass through the recesses **26***a* and **28***a* in the hook **16** and will expand or separate the lips slightly under pressure to permit the hinge pin **14** to enter into the hook portion, and be confined in the channel **27**. Since the plastic material has a certain amount of give it will after the boss **14** has passed the recesses **26***a* and **28***a* cause the lips to spring back to their normal molded position and thereby lock the hinge pin in said hook.

If a box is formed of a body having a greater depth than the lid it will of course be necessary to mold same from different molds, but where both the body and the lid portion are of the same depth one mold will suffice for both.

It will be understood that various changes and modifications may be made without departing from the spirit and scope of the appended claims.

I claim:

1. An integrally molded hinge for a pair of box sections forming a molded box structure of the character described, comprising a hinge pin formed integrally on the rear wall of one of said box sections and a hook formed integrally on the rear wall of the other box section and adapted to engage said hinge pin, said hook having a continuous internal annular channel, and said hinge pin having a boss adapted to be confined in said continuous channel and interlock with said hook.

2. An integrally molded hinge for a pair of box sections forming a molded box structure of the character described, comprising a hinge pin formed integrally on the rear wall of one of the box sections and a C-shaped hook having opposed lips formed integrally on the rear wall of the other box section and adapted to engage said hinge pin, said hook having a continuous internal annular channel, said hinge pin having a beaded portion adapted to cause said lips to spread during insertion of said hinge pin into said hook and then assume their normal molded position to retain the hinge pin.

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